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Notice of Allowability	Application No.	Applicant(s)	
	09/928,014	DUKHIN ET AL.	
	Examiner	Art Unit	
	Krishnan S Menon	1723	

-- **The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**
 All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to transmittal of new application on 8/3/01.
2. ☒ The allowed claim(s) is/are 1-4,6 and 7; RENUMBERED 1-6.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☒ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

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| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>8/3/01</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
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DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 8/3/01 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein regarding the non-patented literature has not been considered.

Oath/Declaration

Applicant is now required to submit a substitute declaration or oath to correct the deficiencies set forth below. The substitute oath or declaration must be filed within the **THREE MONTH** shortened statutory period set for reply in the "Notice of Allowability" (PTO-37). Extensions of time may **NOT** be obtained under the provisions of 37 CFR 1.136. Failure to timely file the substitute declaration (or oath) will result in **ABANDONMENT** of the application. The transmittal letter accompanying the declaration (or oath) should indicate the date of the "Notice of Allowance" (PTOL-85) and the application number in the upper right hand corner.

A new oath or declaration is required because the declaration submitted by A. Dukhin and P. Goetz on 12/12/03 is incomplete – it has omitted the 'reviewed and understood' clause and the 'duty to disclosure' clause. The wording of an oath or declaration cannot be amended. If the wording is not correct or if all of the required affirmations have not been made or if it has not been properly subscribed to, a new oath

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or declaration is required. The new oath or declaration must properly identify the application of which it is to form a part, preferably by application number and filing date in the body of the oath or declaration. See MPEP §§ 602.01 and 602.02. The declaration submitted by S. Dukhin is correct.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with A. Dukhin on 6/2/04.

The application has been amended as follows:

Claims 1-7 are amended to remove improper multiple-dependency in claims 4 and 6, some minor typographical errors, and claim 5 was combined with claim 1 to make the claims in condition for allowance over the prior arts, as follows:

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1. (Currently Amended): A process for the selective dialysis of the waste water containing heavy metals comprising the following steps of:

providing a porous membrane, said membrane having pores of sufficient dimension to allow passage of the heavy metals ions through,

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circulating a concentrated dispersion of silica miscible with said waste water against a first side of said membrane, said silica particles having dimension larger than that of said pores;

passing said waste water containing said heavy metals ions against a second side said membrane whereby certain of said materials becomes bound to said silica particles upon passing through said membrane to said first side in a concentration greater than their concentration in said liquid stream and thereby become separated from the said liquid stream;

wherein said concentrated silica dispersion is fumed silica.

2. (Currently Amended) A process as set forth in claim 1, wherein said wastewater flow in the opposite direction to the said silica dispersion, in a the counter-flow mode;

3. (Currently Amended) A process as set forth in claims 1 and 2, wherein said membrane is organized as membrane device comprising a lumen of a bundle of hollow fibers with silica dispersion flowing either inside or outside of the fibers and wastewater flowing on the opposite side of the fiber membrane;

4. (Currently Amended) A process as set forth in claims 1, 2, and or 3, wherein said concentrated silica dispersion is colloidal silica.

5 (Cancelled)

6. (Currently Amended) A process as set forth in claim 1 and or 3, wherein said colloidal silica saturated with adsorbed ions is pumped out and allowed to solidify.

7. (Original) A process as set forth in claim 6, wherein said colloidal silica saturated with adsorbed ions is pumped out and heat treated for solidification.

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Allowable Subject Matter

Claims 1-4 and 6-7 are allowed.

The following is an examiner's statement of reasons for allowance:

The closest prior arts are Davis (US 4,963,264), Grant et al (US 5,370,827), and El-Ammouri et al (US 6,077,439). Applicants' claim 1, as amended, recites fumed silica as the compound for binding metal ions from solution in a dialysis process for clean-up of wastewater. Davis teaches dialysis for removal of metal ions using chelating compounds, etc., but does not teach silica as the metal ion absorbent. El-Ammori teaches that colloid silica is known as a metal remover from solutions. Grant teaches use of silica gel for metal removal in precipitation techniques, but the silica gel is made in-situ from silicates. None of the references teach the element of the claim stated above, and it would also be not obvious to one of ordinary skill in the art to relate the silica gel of El-Ammouri or colloidal silica of Grant to fumed silica and then substitute fumed silica for the chelating compounds of Davis to arrive at the claimed element because there are no suggestions in any of the references to do so.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Krishnan Menon
Patent Examiner


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